



AIRPLAN
Cleanroom & Process Solutions

SOLUTIONS FOR
**CLEANING
PROCESSES**



THEPROCLEAN CIP / WIP / SIP
CIP / WIP AND SIP SYSTEMS FOR LIFE-SCIENCE INDUSTRIES



THEPROCLEAN CIP
CIP SYSTEM WITH TWO TANKS



VALIDATED CLEANING PROCESSES

FOR THE PHARMACEUTICAL INDUSTRY

THE PRO CLEAN equipment is designed to clean and/or sterilize other production equipment used in the pharmaceutical, biotechnology, cosmetic and food industries. All our equipment guarantees the compliance of the strict requirements demanded by these industries. We help our clients fulfill their legal obligations and manufacture the products by ensuring there is no cross-contamination, which is a key element to guarantee the quality of the final product.

The cleaning/sterilization methods are:

▶ **WIP (Wash-in-Place):**

Semi-automatic cleaning. At any point in the process, manual intervention by an operator is required. This equipment is used to clean tanks, preparation and storage vessels, high-shear mixers, fluid bed dryers, bins and other bowls, and also piping systems.

▶ **CIP (Clean-in-Place):**

Fully automatic cleaning of the production equipment, without moving it from the main location. A technique based on the circulation or recirculation of water, detergent and disinfectant solutions, without dismantling the equipment.

▶ **SIP (Sterilization-in-Place):**

Sterilization of the equipment without moving it from the main location, by means of pure steam to ensure a temperature equal to or higher than 121°C during the minimum time validated by the user to assure the system sterilization.

Not only can the CIP equipment allow the cleaning but also the sterilization (SIP). The CIP equipment then holds all required valves and control elements so that the user only needs to connect it to the pure steam outlet already available on site. This way the Controller (PLC) will be in charge of running the process.



THEPROCLEAN CIP
CIP SYSTEM WITH A TANK AND AN EXTERNAL CONTROL PANEL



AN EFFECTIVE METHOD WITH A HIGH LEVEL OF EFFICIENCY

Efficiency and control

The length of the cleaning process is a key factor. THE PRO CLEAN equipment allows a significant reduction in the time and quality of the washing and / or sterilization process of the equipment used, avoiding incrustation, microbial proliferation or long downtime periods.

THE PRO CLEAN equipment helps you to optimize four crucial factors:

- ▶ **Mechanical effect.** The cleaning process is based on the impact produced by the spraying of water with detergent on the surfaces of the equipment to be cleaned. As no tool is used, it is guaranteed that the internal surfaces of the equipment will not be damaged.
- ▶ **Chemical action.** In the control system, the parameters are entered to make the mixture of detergent with water. In this way the same concentration of the mixture is always achieved and allows making an estimate of the detergent to be used. In addition, you can use different programmed concentrations, according to the product to be cleaned.
- ▶ **Temperature.** To achieve greater efficiency and effectiveness in the washing process, it is often desirable to heat the water to be used.
- ▶ **Time and resources.** To optimise the consumed resources, such as water, electricity or detergent, different cleaning recipes can be used. This way it is possible to make a more aggressive and long wash for those products difficult to clean, or a shorter wash with less resources consumption for those easy-to-clean products.

Benefits of the process

It is a technique based on the circulation or recirculation of water and detergent and disinfectant solutions without need to dismantle the equipment and installations, so that all the surfaces in contact with the product are cleaned and disinfected.

- ▶ **Time saving.** Fast and on-site cleaning process.
- ▶ **Safety.** No cross-contamination; clean water at all stages of functioning.
- ▶ **Automatic and replicable.** Fully automated cleaning process via validated software.
- ▶ **Cost reduction.** Low consumption of energy, water and detergent.
- ▶ **Self-cleaning.** Our CIP equipments are self-cleaning.

Compliance with international standards

Our THE PRO CLEAN equipment is designed and manufactured according to regulations such as cGMP, ISO 14644 and 21 CFR Part 11 (FDA), ASME-BPE, also complies with the European Machinery Directive (2006/42/CE) and is CE marked.

Besides, the equipment is delivered with its Documentation Dossier, in a digital and paper format. This includes the technical documentation from the specific operating and maintenance manual - including the spare parts list - the CE certification, individual components certifications and the electrical diagrams.



THEPROCLEAN CIP
CIP SYSTEM WITH A TANK AND AN EXTERNAL CONTROL PANEL



CLEANING PROCESSES WITH **PREDICTABLE RESULTS**

High-tech components

Our CIP systems guarantee cleaning processes in equipment or installations specially designed for such use.

We only work with components from leading manufacturers in the industry, which provide us with state-of-the-art accessories.

Fixed or mobile equipment, but always compact

THE PRO CLEAN equipment can be designed to enable both fixed and mobile applications according to the client's needs, always making sure that it is as compact as possible to gain space and reduce weight.

Replicable processes

Thanks to software written by AIRPLAN, the client can automate recipes, reports or manage data from the integrated control panel. In addition, it is possible to visualize in real time the critical variables of the process, as well as to adjust the parameters manually or automatically.



THEPROCLEAN
CIP System with 2 integrated tanks and additional tanks for the PW loop.
Client: Bonin / Guatemala / 2010



THEPROCLEAN
Drying and CIP System with a tank.
Client: Bayer / Venezuela / 2011

THEPROCLEAN CIP
CIP SYSTEM WITH A TANK AND AN EXTERNAL CONTROL PANEL



THEPROCLEAN

THE EQUIPMENT CONFIGURATION

MAIN FEATURES

Material **Interior:** All parts in contact with the product are made of stainless steel AISI 316L and finished according to the client's requirements. Standard polishing of $Ra \leq 0,8 \mu m / \leq 32 \mu inch$. Lower roughnesses on request.
Exterior: Parts not in contact with the product are made of stainless steel AISI 304L or similar.

Main features

- ▶ Sanitary connections according to ASME BPE or others.
- ▶ Total draining.
- ▶ In order to carry out a SIP, the equipment must be capable of working at the appropriate temperature and pressure.
- ▶ Optional water heating by means of heat exchanger.
- ▶ Set of valves to automate recipes during a cleaning/sterilisation process.
- ▶ Automatic control system for recipes execution, additive dosing and level control of the tanks.

Capacity Upon client's needs.

ELEMENTS OF A MULTIPURPOSE CIP

- | | |
|-------------------------------|--|
| (1) Tank(s) and accessories | (6) Automatic valves |
| (2) Supply pump | (7) Control elements |
| (3) Cleaning solutions dosage | (8) Electrical control panel with recipe program |
| (4) Plate heat exchanger | |
| (5) Supply piping | |



WHAT DO YOU NEED?

WE PROVIDE YOU WITH TAILOR-MADE SYSTEMS

Providing customized equipment starts from the conceptualization.

We respond to specific needs and the possibilities of each client with specific designs. For each cleaning system we adapt to the client's needs and possibilities and also to the application environment.

CLEANING SYSTEMS WITHOUT TANKS

THEPROCLEAN BASIC CIP / WIP / SIP

Use For customers who want to reuse an existing tank to make a CIP and also want to control detergent dosing, make recipes and control the water temperature.

Benefits

- ▶ Easy to use, compact and small equipment.
- ▶ It is usually delivered as a mobile version, but also available as fixed application, on request.

CLEANING SYSTEM WITH ONE OR SEVERAL TANKS

THEPROCLEAN TANK CIP / WIP / SIP

Use Cleaning solution storage tank/tanks.

Benefits

- ▶ Easy application of CIP / SIP.
- ▶ Available in mobile and fixed execution.



THEPROCLEAN
Mobile CIP equipment without tank.



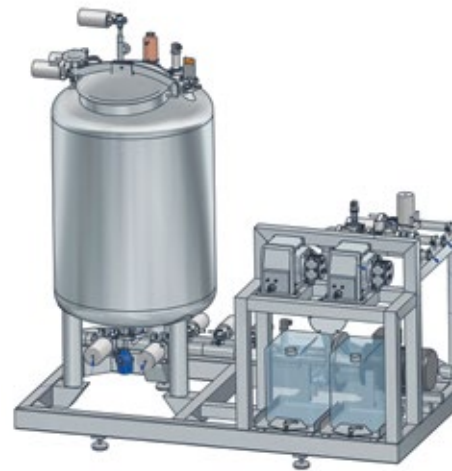
THEPROCLEAN
Fixed CIP with a tank, a heat exchanger and a control panel.





THEPROCLEAN

Mobile CIP equipment with 2 tanks and integrated control panel.



THEPROCLEAN

Fixed CIP with a tank. Solution with external control panel.

CLEANING SYSTEM WITH CIP PUMP

THEPROCLEAN PUMP

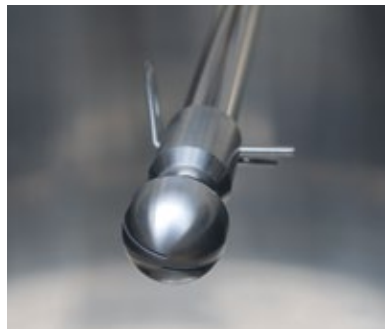
Use Solution to run a CIP in recirculation. It consists of a CIP pump and one or more sprayballs that apply the detergent solutions and the rinsing over the entire surface of a vessel.

- Benefits**
- ▶ Flexible and easy-to-install system.
 - ▶ Economic solution.

THEPROCLEAN PUMP

CIP pump

On the right:
Sprayball for vessels
and tanks



THEPROPREINJECT

Preparation vessel for liquid solutions 400 L (105 US gal) with integrated CIP through pump and sprayballs in the vessel.

Client: Laboratorios Oticoff / Colombia / 2013



¿more?

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ENGLISH
2018 / 03